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(54) Bone plate for the distal humerus

(57) Y-shaped bone plate for the distal humerus, with a main part (1) for application to the dorsal surface of the bone shaft and, connected to this main part, two fork parts (4, 5) for application as far as the elbow condyles. The lateral fork part is bent convex and the medial fork part (5) or the transition area (3) from the main part (1) to the medial fork part (5) is bent concave.

Fig. 2

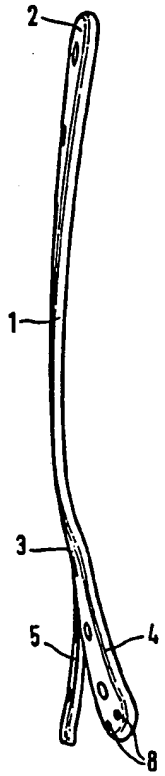

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Fig. 2

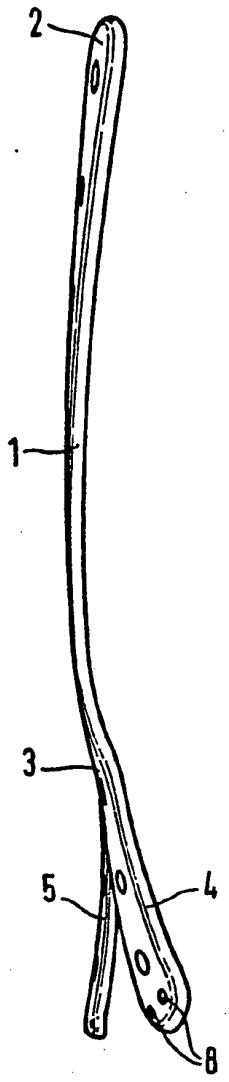


Fig. 1

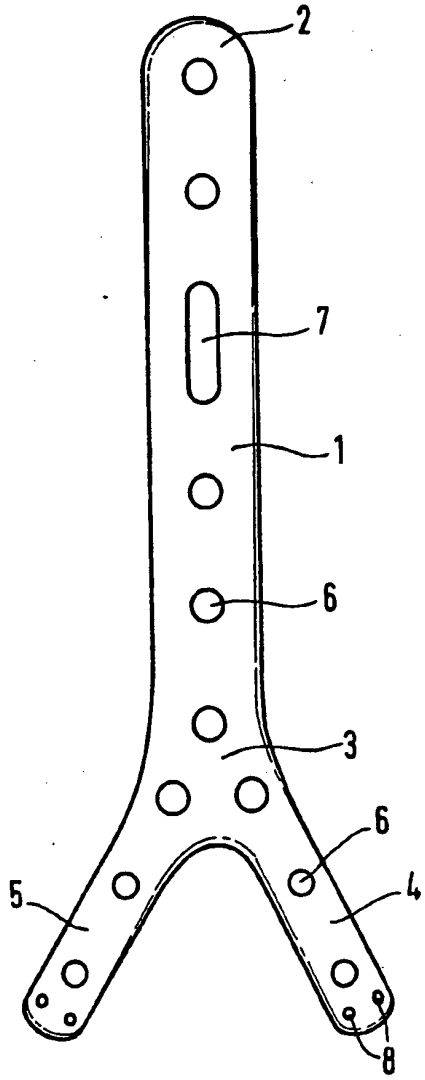


Fig. 3

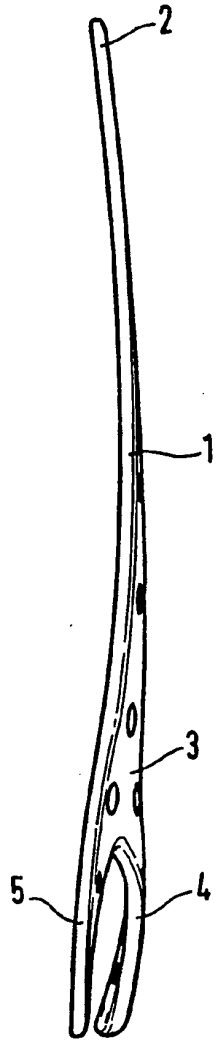
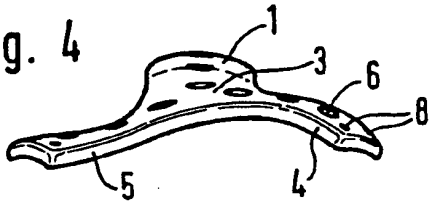


Fig. 4



Bone plate for the distal humerus

The invention relates to a Y-shaped bone plate for the distal humerus, with a main part for application to the dorsal surface of the bone shaft and, connected to this main part, two fork parts for application as far as the elbow condyles.

A known bone plate of this type is designed flat and is composed of relatively wide intermediate areas containing the screw holes and of relatively narrow intermediate areas, which areas can be bent readily in any direction. However, this does not simply have the disadvantage that the support rigidity of the bone plate is reduced. Above all, it is also very difficult to follow the very complicated form of the course of the natural bone in each individual case by bending the plate, especially if the originally present form is no longer recognisable due to a complex fracture. It may therefore easily happen that, upon splinting of the fracture, resetting errors occur because the bone plate is non-anatomical.

The invention remedies this by virtue of the fact that the plate is bent in standard fashion, with the lateral fork part bent convex and the medial fork part or the transition area from the main part to the medial fork part bent concave. The main part is advantageously bent convex. The whole transition area from the main part to the fork parts is advantageously bent concave. Finally, it is advantageous for the main part up to and including

the transition area to be twisted in the lateral-anterior direction. Finally, it is advantageous for the plate or some parts thereof also to be bent convex in cross-section.

The bone plate according to the invention provides an anatomical form which corresponds to the statistical average, so that in each individual case only slight deviations from the shape of the individual bone need be taken into consideration. Therefore, no or only very slight bending corrections of the plate are necessary. Resetting errors due to the plate shape are therefore limited to the slight difference between the individual and the statistically average bone shape.

The expressions convex and concave relate to the viewing direction toward the outer side of the plate.

The invention is described in greater detail below with reference to the drawing which illustrates an advantageous exemplary embodiment of a bone plate designed for the right upper arm. In the drawing:

Fig. 1 shows a plan view of the outer side of the plate,
Fig. 2 shows a side view of the lateral side,
Fig. 3 shows a side view of the medial side, and
Fig. 4 shows an end view of the forked end of the plate.

The main part 1 of the plate is approximately straight in the plan view in Fig. 1. Figs. 2 and 3 show that it is curved by approximately 5 to 15° over its entire length from the proximal end 2 as far as the transition area 3. In the same area it is twisted, and in such a way that the transition area 3 is turned about 5 to 15° counter-clockwise relative to the distal end 2 in Fig. 4. Fig. 4 also shows, in conjunction with the contour of the underside of the cross-section of the main part shown there by a broken line, that this is also bent in the transverse direction. This advantageously applies also to

the fork parts 4 and 5 which connect with the transition area 3. The main part 1 and the fork parts 4, 5 have in each case a constant width.

The lateral fork part 4 is curved convex over its length, it being possible to provide between the main part and the fork part 4 a straight to slightly concave stretch in the transition area 3. In addition, the fork part 4 is twisted in the lateral-anterior direction toward its end.

In contrast, the medial fork part 5 is designed slightly concave, this bending connecting continuously to the slightly concave design of the transition area 3.

The plate is provided in a conventional manner with screw holes 6. An oblong hole 7 is arranged so far proximally that the proximal main fragment can normally be held through this with a centrally lying screw, in order to able to carry out an inter-fragmentary compression if necessary. At the ends of the fork parts, bores 8 are provided for drill or guide wires.

In the case of the plate provided for the left upper arm, the side relationships are correspondingly reversed.

The plate can be offered in several sizes, allowing the surgeon to select from the range the most suitable implant for the case in question.

Patent claims

1. A Y-shaped bone plate for the distal humerus, with a main part for application to the dorsal surface of the bone shaft and, connected to this main part, two fork parts for application as far as the elbow condyles, wherein the lateral fork part (4) is bent convex and the medial fork part or the transition area from the main part to the medial fork part is bent concave.

2. The bone plate as claimed in claim 1, wherein the main part (1) is bent convex.

3. The bone plate as claimed in claim 1 or 2, wherein a transition area (3) from the main part (1) to the fork parts (4, 5) is bent concave.

4. The bone plate as claimed in one of claims 1 to 3, wherein the main part (1) is twisted in the lateral-anterior direction from the proximal end (2) to the transition area (3).

5. A V-shaped bone plate for the distal humerus, substantially as herein described and as illustrated in Figures 1 to 4.

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